

Alternative Design Concepts for Corridors and Access



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Traffic Conference for Mobility and Safety

Ideal Driving Conditions



Usual Driving Conditions



Intersections



A place where two or more roads meet

Signalized Intersections

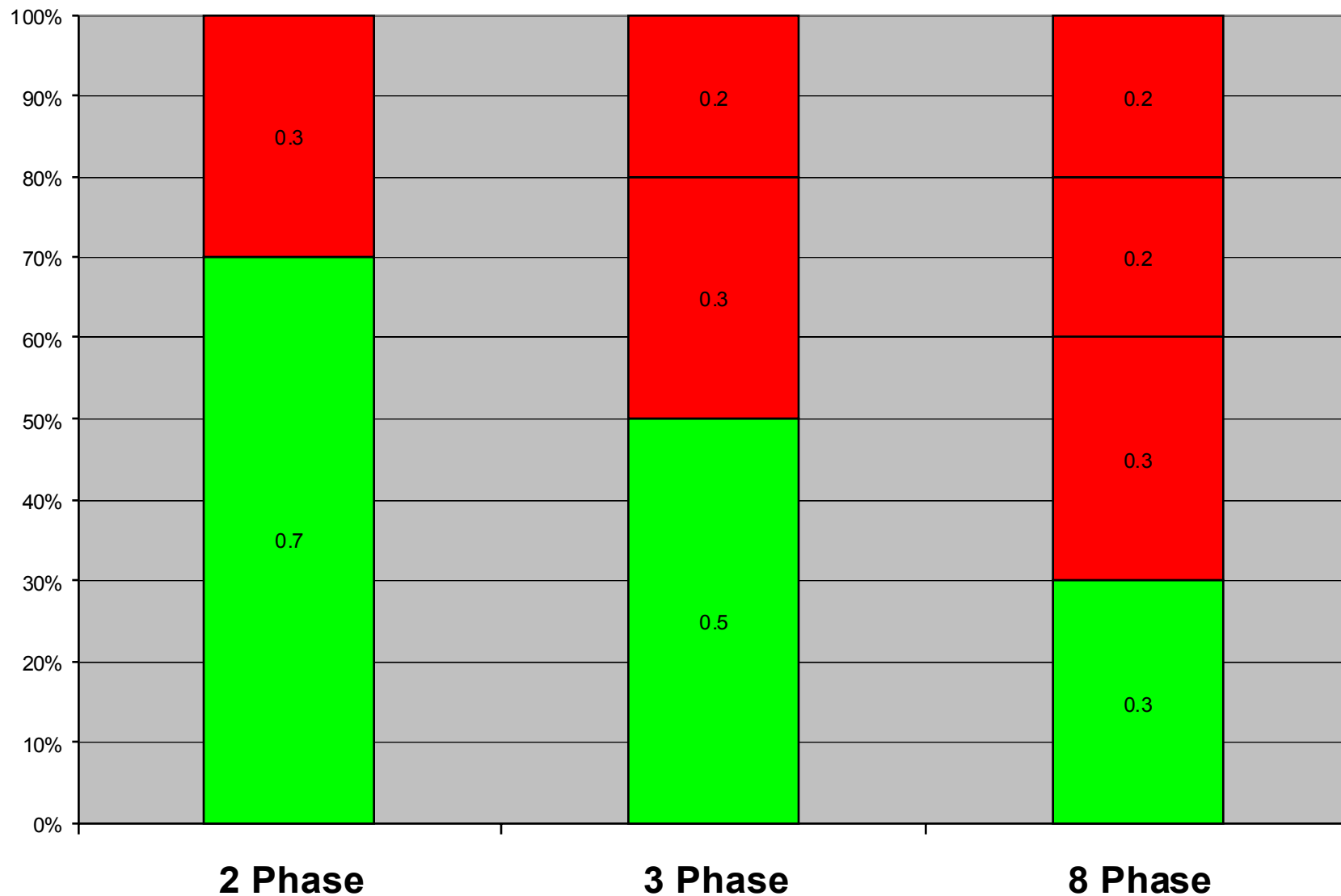
The Purpose of a Traffic Signal is to take the Right-of-Way assignment away from the main flow of traffic and assign it to lesser movements

Intersections

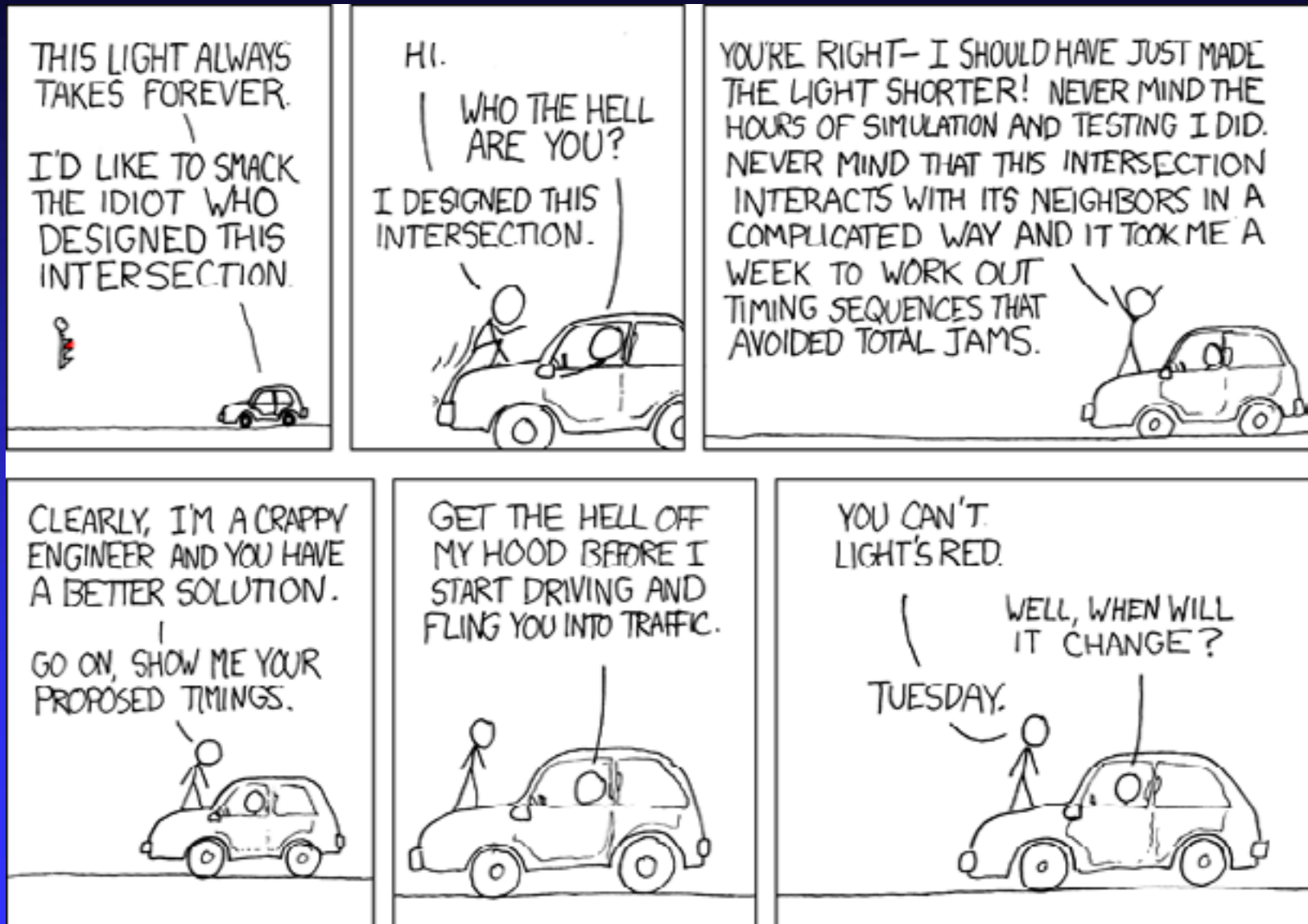


Eight-Phase Signal

Percent Green Time



8-Phase Signal = Frustrated Drivers



Intersections



Does every intersection need every movement served at the same location?

Alternative Intersection Design Concepts

- ⇒ Separate conflicting movements
- ⇒ Reduce conflicts
- ⇒ Remove signals where possible
- ⇒ Limit phases at signalized intersections
- ⇒ Provide better signal coordination

Alternative Intersection Design Concepts

- ⇒ Roundabouts
- ⇒ Superstreets/Median U-Turns
- ⇒ Jughandles
- ⇒ Offset “T” Intersections
- ⇒ Quadrant Lefts
- ⇒ Continuous Flow Intersection

Roundabouts



Save two-lane bridges

Oval Roundabouts



Provide safe alternative for unusual intersections

Superstreets

Includes concept variations

- ⇒ Leftover with median U-turn
- ⇒ No direct lefts
- ⇒ Michigan Median Left
- ⇒ “Left-out” Intersection
- ⇒ Offset “T” Intersections

Superstreets



Leftover with median U-turn

Superstreets



No Direct Lefts

Superstreets



Michigan Lefts

Superstreets



“Left-Out” Intersection

Superstreets



Offset "T" Intersections

Jughandles



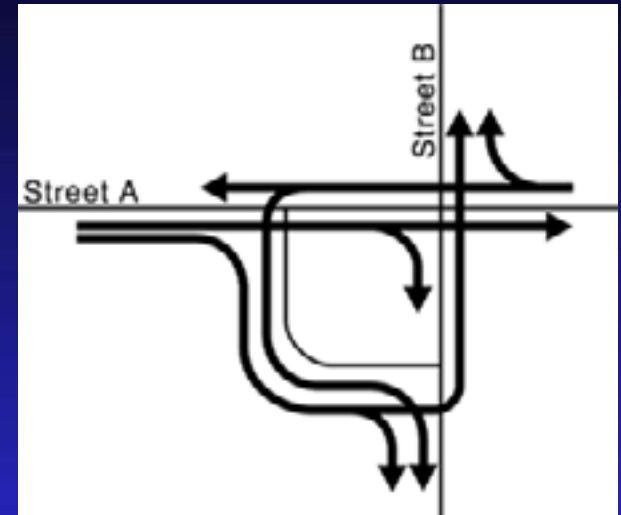
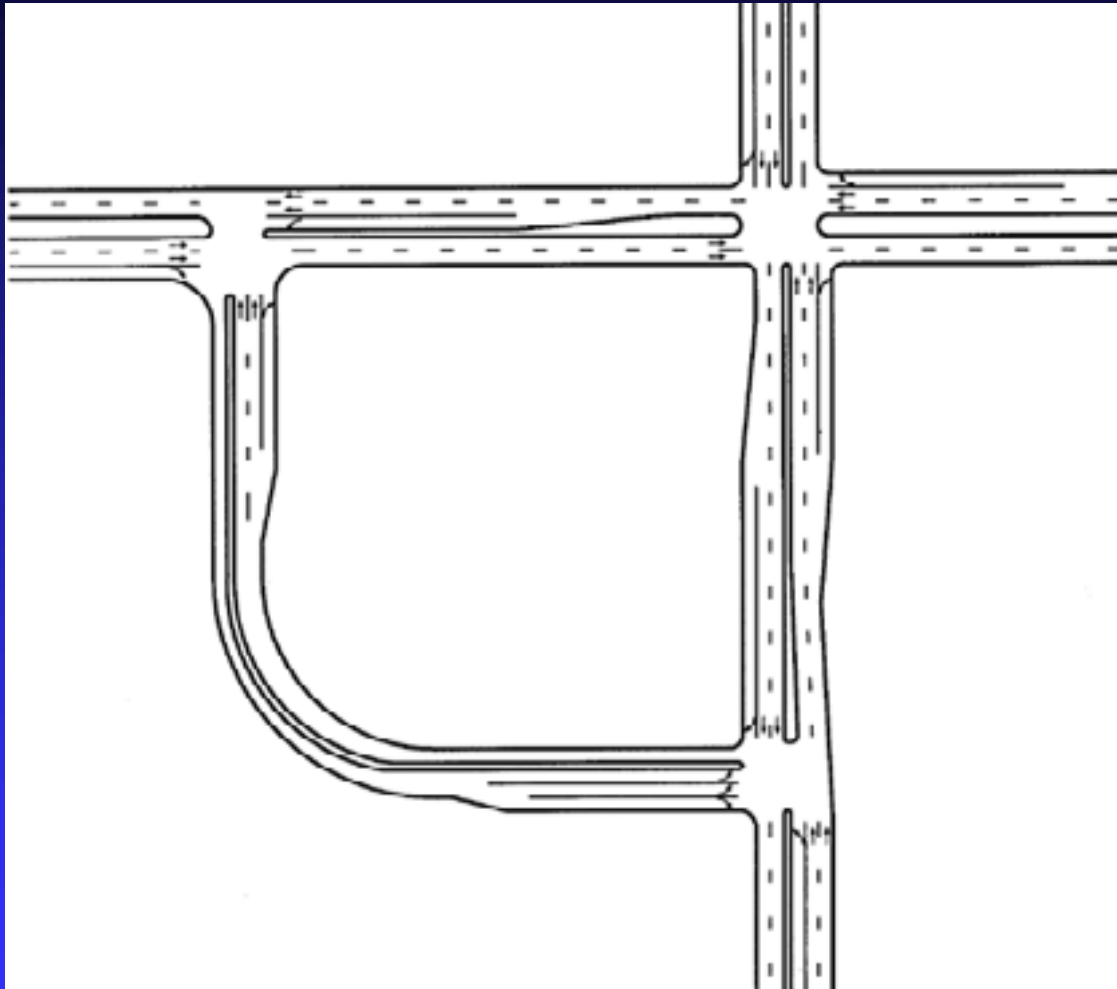
Main Street – No Lefts

Offset “T” Intersections

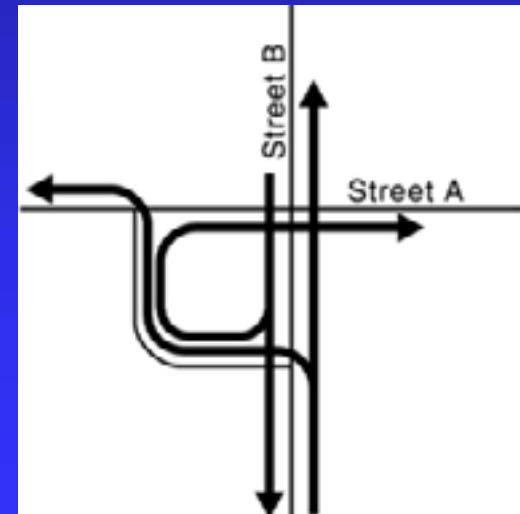


Two 3-Phase Signals Operate Better than an 8-Phase

Quadrant Lefts



Movements from Street A



Movements from Street B

Quadrant Lefts



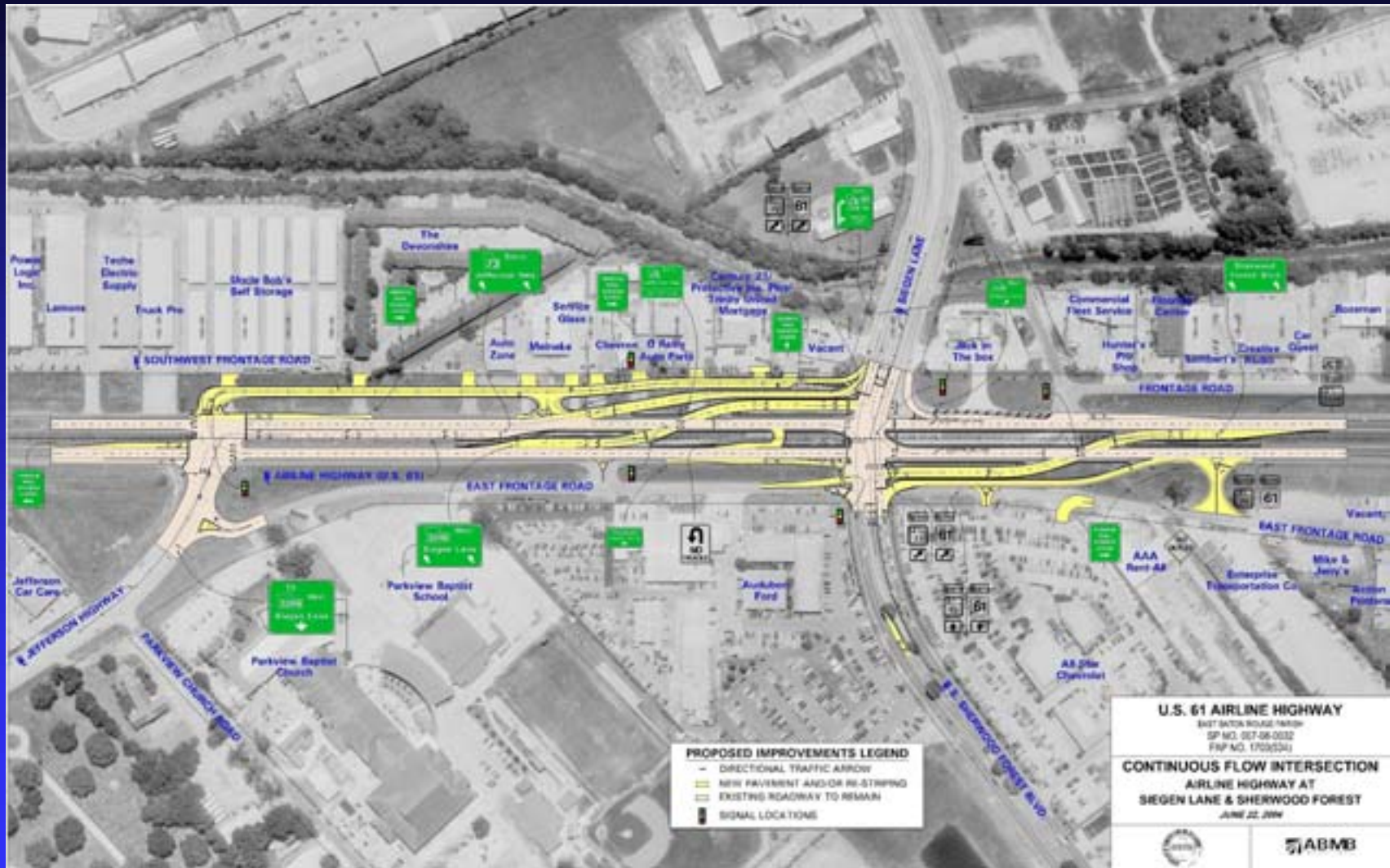
One 2-Phase and Two 3-Phase Signals

Left In/Out Access



Ingress and Egress Movements at Same Time

Continuous Flow (CFI)



Left Turns Move During Same Phase as Throughs

Continuous Flow (CFI)



Side Street Left Turn at Same Time as Main Left

Continuous Flow (CFI)



Alternative Intersection Concepts



Don't Allow the “Simple” Fourth Leg

Alternative Interchange Design



Not All Interchanges Need to be Complicated

Alternative Interchange Design

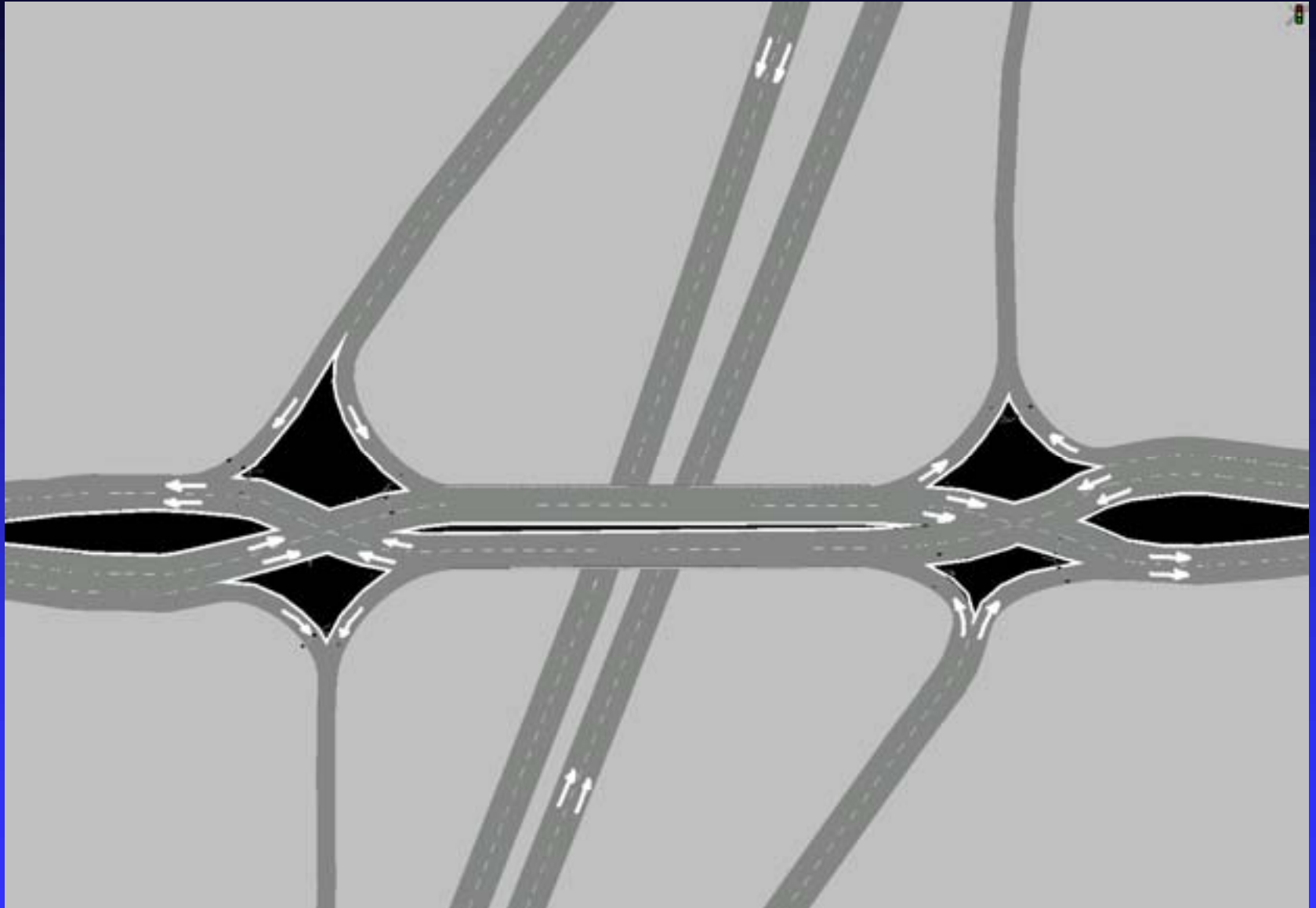
- ⇒ Single-Point Urban Interchange (SPUI)
- ⇒ Diverging Diamond
- ⇒ Wide Loop - Single Quadrant
- ⇒ Elevated U-Turns

Single-Point Urban Interchange



SPUIs – Compact Design, Expensive Construction

Diverging Diamond



Diverging Diamond Design

Missouri DOT



Diverging Diamond



Single Quadrant Interchanges



Sometimes Additional Bridge is Less Expensive than
Right-of-Way Acquisition

Single Quadrant Interchanges



Quadrant Interchange Simplifies Intersection

Elevated U-Turns



Found in Foreign Countries such as Malaysia

Elevated U-Turns



...the Philippines

Elevated U-Turn



...and New Jersey

Mission, Goals and Values

NCDOT

OUR MISSION

*Connecting people and places
in North Carolina – safely and
efficiently, with accountability
and environmental sensitivity*

OUR GOALS

- Make our transportation network **safer**
- Make our transportation network move people and goods more **efficiently**
- Make our infrastructure **last longer**
- Make our organization a place that **works well**
- Make our organization **a great place to work**



OUR VALUES

- **SAFETY** - We strive for safety throughout our transportation networks as well as in our work and our daily lives.
- **CUSTOMER SERVICE** - We respond to our customers, both internal and external, in an open, professional and timely manner.
- **INTEGRITY** - We earn and maintain trust by responsibly managing the states assets, acting ethically, and holding ourselves accountable for our actions.
- **DIVERSITY** - We draw strength from our differences and work together in a spirit of teamwork and mutual respect.
- **QUALITY** - We pursue excellence in delivering our projects, programs, services and initiatives.